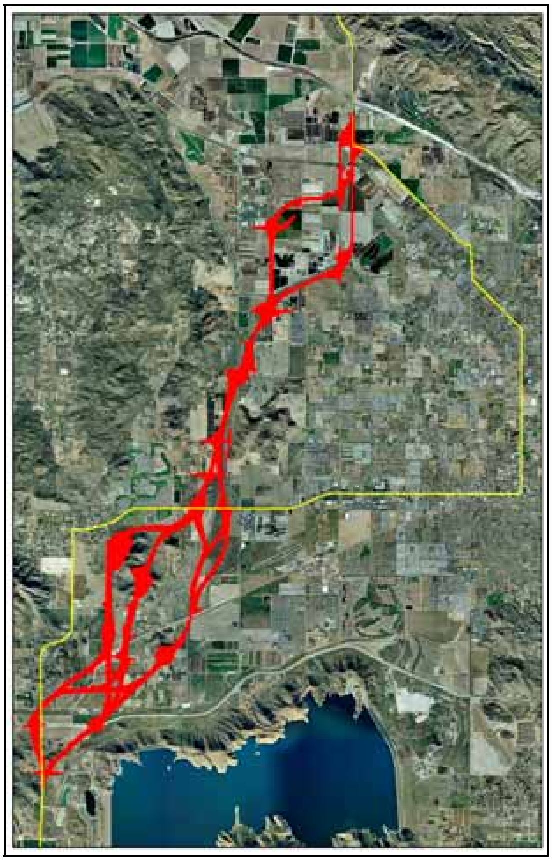
State Route 79 Realignment Project:
Domenigoni Parkway to Gilman Springs Road



Draft Qualitative PM Hot Spot Analysis

Realign State Route 79

between Domenigoni Parkway and Gilman Springs Road

in the Cities of Hemet and San Jacinto and the County of Riverside

Riverside County, California

District 8-RIV-79-KP R25.4/R54.4 (PM R15.78/R33.80)

08-494000

RTIP ID Number: RIV62024

November 2008

The environmental review, consultation, and any other action required in accordance with applicable Federal laws for this project is being, or has been, carried out by Caltrans under its assumption of responsibility pursuant to 23 U.S.C. 327.

Caltrans

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Table of Contents

List of Figures

List of Tables

Attachment

List of Abbreviated Terms

$\mu g/m^3$	micrograms per cubic meter
AADT	annual average daily traffic
ARB	California Air Resources Board
CEQA	California Environmental Quality Act
CFR	*Code of Federal Regulations*
Department	California Department of Transportation
FHWA	Federal Highway Administration
I	Interstate
km	kilometer(s)
KP	kilometer post
LOS	level of service
m	meter(s)
mi	mile(s)
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
PM	post mile; particulate matter
$PM_{2.5}$	particulate matter less than 2.5 micrometers in aerodynamic diameter
PM_{10}	particulate matter less than 10 micrometers in aerodynamic diameter
POAQC	project of air quality concern
RCTC	Riverside County Transportation Commission
ROW	right-of-way
SR	State Route
STAA	Surface Transportation Assistance Act
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
VMT	vehicle miles traveled

Summary

This qualitative hot spot analysis was conducted to demonstrate project-level conformity, under the federal Transportation Conformity Rule, for the Realignment of State Route 79 (SR 79) (Project or proposed Project). The Project is located in a federal nonattainment area for both for particulate matter less than 10 micrometers in aerodynamic diameter (PM_{10}) and particulate matter less than 2.5 micrometers in aerodynamic diameter ($PM_{2.5}$). Therefore, the qualitative analysis addresses the potential for hot spots for both PM_{10} and $PM_{2.5}$. The project-level hot spot assessment was conducted to assess whether the Project would cause or contribute to any new localized PM_{10} or $PM_{2.5}$ violations, increase the frequency or severity of any existing violations, or delay timely attainment of the PM_{10} or $PM_{2.5}$ National Ambient Air Quality Standards.

Chapter 1 Introduction

1.1 Project Background

The Riverside County Transportation Commission (RCTC) (Project proponent), in cooperation with District 8 of the California Department of Transportation (Department), the County of Riverside, the City of Hemet, and the City of San Jacinto, has proposed a project[1] for the realignment of State Route 79 (SR 79) (Project or proposed Project) in the vicinity of the cities of Hemet and San Jacinto in Riverside County, California. The Department will serve as the Federal Lead Agency under the National Environmental Policy Act (NEPA)[2] and the State Lead Agency under the California Environmental Quality Act (CEQA). The United States Army Corps of Engineers (USACE) is a Cooperating Agency under NEPA (Federal Highway Administration [FHWA] 2005). The regional location of the Project is shown in Figure 1.1-1, Regional Project Location. The realignment is proposed to occur south of Domenigoni Parkway and continue north to Gilman Springs Road, a distance of approximately 30 kilometers (km) (19 miles [mi]). The segment of SR 79 proposed for realignment is shown in Figure 1.1-2, Existing State Route 79.

1.2 Purpose of Report

The purpose this report is to qualitatively evaluate whether the Project would result in particulate matter less than 2.5 micrometers in aerodynamic diameter ($PM_{2.5}$) and particulate matter less than 10 micrometers in aerodynamic diameter (PM_{10}) hot spots. This evaluation is required to demonstrate project-level conformity, under the federal Transportation Conformity Rule, because the Project is located in a federal PM_{10} and $PM_{2.5}$ nonattainment area and may be a project of air quality concern.

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[1]The proposed Project is being conducted in accordance with the NEPA/404 Integration Process. This process is a joint effort among the Department, FHWA, the USACE, USEPA, the USFWS, and other transportation and resource agencies to integrate the NEPA and the federal Clean Water Act Section 404(b)1 alternatives analysis process. The commitment by these agencies to coordinate these processes is documented in a Memorandum of Understanding approved in 1994.

[2]The environmental review, consultation, and any other action required in accordance with applicable Federal laws for this project is being, or has been, carried out by Caltrans under its assumption of responsibility pursuant to 23 U.S.C. 327.

1.3 Project Purpose

The purpose of the proposed transportation action in the cities of San Jacinto and Hemet and unincorporated Riverside County is:

> *To construct a realigned SR 79 facility between Domenigoni Parkway and Gilman Springs Road that will increase capacity to facilitate the regional movement of people and goods for the planning design year of 2035, enhance safety, and protect right-of-way (ROW) needed for the SR 79 facility improvements.*

More specifically, the selected alternative for the proposed Project will:

- Provide a segment of SR 79 that will more effectively connect Domenigoni Parkway and Gilman Springs Road
- Address the east-west and north-south through traffic that exists on the shared segment of SR 74 and SR 79
- Be a limited access facility
- Accommodate Surface Transportation Assistance Act (STAA) National Network for oversize trucks
- Provide a facility that is compatible with a future multimodal transportation system

1.4 Project Need

The need for the transportation action is:

> *The segment of SR 79 between Domenigoni Parkway and Gilman Springs Road does not provide an adequate north-south transportation facility for the movement of regional travel between these two locations.*

There are several factors that have contributed to the deficiencies on SR 79 between Domenigoni Parkway and Gilman Springs Road. These include:

- The current route does not provide an effective north-south transportation corridor between Domenigoni Parkway and Gilman Springs Road. Through traffic following the SR 79 alignment is currently led through the downtown areas of Winchester and the cities of Hemet and San Jacinto.

- Because of the current route condition, through traffic is currently diverting from SR 79 to travel on more direct routes on the local road network (Sanderson Avenue and Warren Road).
- SR 79 and SR 74 share the roadway along 11.3 km (7 mi) of Florida Avenue. As a result, east-west and north-south through traffic is mixed along this segment of SR 79 with local traffic attempting to access the numerous businesses in this commercial district in the city of Hemet.
- Commercial and residential areas along SR 79 in the proposed Project area have numerous direct access points on the existing route. These access points lead to frequent ingress and egress and many points of conflict between local and through traffic.
- The geometrics of SR 79 do not support truck traffic (STAA vehicles). The segment of SR 79 between SR 74 and Gilman Springs Road is classified as Advisory, and over-size vehicles are diverted to Sanderson Avenue to pass through the cities of Hemet and San Jacinto. These vehicles on local roads are degrading the safety and pavement structure of Sanderson Avenue and other local roads. The existing situation will not meet the current and future goods movement needs through the cities of San Jacinto and Hemet.
- The current SR 79 alignment through the cities of San Jacinto and Hemet is only suitable to accommodate local public transportation services. New services will need to be established to provide the compatibility with a future multimodal transportation system.
- Fatality and injury accident rates on the majority of SR 79 between Domenigoni Parkway and Gilman Springs Road are higher than the comparable statewide average. Accident rates on a number of parallel local roads and major intersections that currently support diverted north-south through traffic are also higher than the statewide averages for both fatal and injury accidents.
- The existing SR 79 facility has inadequate capacity to accommodate both local and regional travel demand associated with the projected growth (residential, retail, and commercial development) and regional attraction (Diamond Valley Lake) in the San Jacinto Valley area through the planning year 2035.

1.5 Project Limits and Alternatives

The Project alternatives consist of a “No Build” and several “Build” alternatives. The No Build Alternative is considered to be a “do nothing” or “no action” alternative. The Build alternatives propose specific construction, operation, maintenance, and other related activities. The Build alternatives occur within the defined Project limits. The Project limits and alternatives are described below.

1.5.1 Project Limits

The Project limits are defined from the southern extent of the Project to the northern extent of the Project. The southern limit of the Project begins at kilometer post (KP) R25.4 (post mile [PM] R15.78), which is 2.035 km (1.26 mi) south of Domenigoni Parkway. The Project continues to the northern limit at KP R54.4 (PM R33.80), which is the intersection of SR 79 and Gilman Springs Road.

Limits for the Project were determined after assessing existing conditions and defining the Project purpose and need (RCTC 2003). The Project was determined to be a stand-alone Project with independent utility and logical termini. Project implementation will not preclude or predefine any reasonable alternatives for consideration.

1.5.2 The “No Build” Alternative

The No Build alternative will require no action by the Project proponent (RCTC) and the federal and state Lead Agency (Department). Existing and projected capacity and safety needs will not be addressed. The existing SR 79 will not be realigned, ROW will not be acquired, and roadway construction will not occur. The portion of SR 79 proposed for realignment will remain in place and unchanged, as illustrated in Figure 1.1-2, Existing State Route 79. The selection of the No Build Alternative does not preclude the implementation of projects currently included in the General Plans of Riverside County, the City of Hemet, and the City of San Jacinto or those that may be proposed in the future.

1.5.3 The “Build” Alternatives

Four Build alternatives have been proposed by RCTC and the Department to realign existing SR 79. The following sections describe the Build alternative action, Project implementation, as well as the design features and construction of the Build alternatives.

1.6 Build Alternative Action

If a Build alternative is selected, RCTC, FHWA, and the Department, in coordination with the County of Riverside and the Cities of Hemet and San Jacinto, will take the following actions:

- Preserve and acquire the ROW and establish easements needed for construction, operation, and maintenance of the Project (Project ROW)
- Construct, operate, and maintain the selected Build alternative
- Relinquish the realigned segment of the existing route to the respective local governments (from KP R25.4 to R53.6 [PM R15.78 to R33.30]) and adopt the Build alternative as SR 79, in coordination with the California Transportation Commission, a Responsible Agency for the Project under CEQA

It is anticipated that the local governments (County of Riverside, City of Hemet, and City of San Jacinto) will amend the circulation element of their respective general plans to include the selected Build alternative and necessary local street improvements for the Project.

1.7 Project Implementation

Implementation of the Project is defined as construction, operation, and maintenance activities required if a Build alternative is selected. Implementation of the Project will be phased over a period of time due to the complexity of the Project.

Opening Day (2015) conditions represent the completed construction of Project features that allow the roadway to be opened to public travel and operate as a transportation facility. Construction of additional Project features, primarily to transition signalized at-grade intersections to grade-separated interchanges, will occur at some future date after Opening Day but prior to the 20-year Design Horizon (2035). The timing of this additional construction will be determined based on roadway capacity, operation, or safety needs.

1.7.1 Prior to Opening Day

After completion of all Project approval activities and prior to the operation of the roadway, several activities will occur. ROW acquisition for the Project will occur prior to construction, including all temporary and permanent construction easements. Then, the construction of the Project will occur. Once Project construction is completed, the roadway will be opened to public travel; this establishes Opening Day for the Project.

1.7.2 Opening Day: 2015

The Project roadway will open to traffic as a limited access expressway with four travel lanes (two lanes in each direction) for Opening Day in 2015. Local access connections will include both at-grade intersections and grade-separated interchanges. Operation and maintenance activities for the selected Build alternative will begin once the Project is open to public travel. The Project Opening Day conditions are illustrated in Figure 1.7-1, Build Alternatives, Opening Day.

1.7.3 20-Year Design Horizon: 2035

The 20-Year Design Horizon conditions represent the ultimate design for the Project. After Opening Day, construction at selected locations will be required at various intervals to build additional Project features to represent the ultimate design. The additional Project features to be constructed after Opening Day but prior to the 20-Year Design Horizon consist of activities to transition signalized at-grade intersections to grade-separated interchanges.

The 20-Year Design Horizon conditions are illustrated in Figure 1.7-2, Build Alternatives, 20-Year Design Horizon. Despite the phased implementation of the Project, potential environmental impacts will be analyzed for the 20-Year Design Horizon condition, as this condition represents the full Project impact.

1.8 Description of the Build Alternatives

1.8.1 Determination of the Build Alternatives

The process and selection of the Build alternatives were coordinated by a multidisciplinary team of federal, state, regional, and local entities. Public participation was incorporated into this process through meetings, public notices, newsletters/fact sheets, newspaper advertisements, website updates, and e-mail notifications. The Build alternatives selection process was documented as decisions were made for the Project (Hemet 2007; San Jacinto 2001; Department 2002; FHWA 2004; RCTC 1998, 2003, 2004, 2005, 2006; SCH 2004, 2005; USACE 2007; USEPA 2007a; USFWS 2007).

The baseline for analysis of impacts (referred to as the Project baseline) is January 30, 2007. This was established as a result of the City of Hemet Resolution No. 4137 (Hemet 2007); this represented the final action to define the Project Build alternatives. At the time the Project baseline was established, only the City of San Jacinto had established a Locally Preferred Alternative (San Jacinto 2001). The City of Hemet adopted Resolution No. 4216 on May 13, 2008, selecting their Locally Preferred Alternative (City of Hemet 2008). The County of Riverside has not selected their respective Locally Preferred Alternative. In addition, RCTC and the Department have not selected a Preferred Alternative for the Project.

1.8.2 Definition of the Alternative Corridors and Build Alternatives

Each Build alternative is comprised of several roadway segments that can be grouped into different combinations to form a complete Build alternative. The roadway segments at the 20-Year Design Horizon are illustrated in Figure 1.8-1, Project Roadway Segments.

Roadway segments are represented in one of two alternative corridors. The two alternative corridors represent two unique areas for Build alternatives, primarily in the central portion of the Project area. The combination of roadway segments within these two alternative corridors results in the selection of four unique Build alternatives for the Project. Both alternative corridors are described in additional detail below and are illustrated in Figure 1.8-2, Alternative Corridor 1, and Figure 1.8-3, Alternative Corridor 2.

Both alternative corridors are located in the county of Riverside and western portions of the cities of Hemet and San Jacinto. Alternative Corridor 1 is located west of Alternative Corridor 2. Study areas are defined as 152.4 meters (500 feet) beyond the Project ROW required for each alternative corridor. The calculated length, ROW, and study area for each alternative corridor are identified in Table 1.8-1.

Table 1.8-1 Alternative Corridors, Build Alternatives, and Roadway Segment Combinations

Build Alternative	Roadway Segment	Length		Right-of-Way (area)		Alternative Corridor Study Area (area)	
		Kilometers	Miles	Hectares	Acres	Hectares	Acres
Alternative Corridor 1							
1a	A, E, G, I, J, L, N	20.3	12.7	439.8	1086.6	1282.0	3168.0
1b	B, C, G, I, K, M, N	20.0	12.5	410.6	1014.5	1221.8	3019.2
Alternative Corridor 2							
2a	A, F, H, I, K, L, N	20.0	12.6	415.7	1027.1	1272.8	3145.1
2b	B, D, H, I, J, M, N	19.2	10.9	397.3	981.6	1188.5	2936.8

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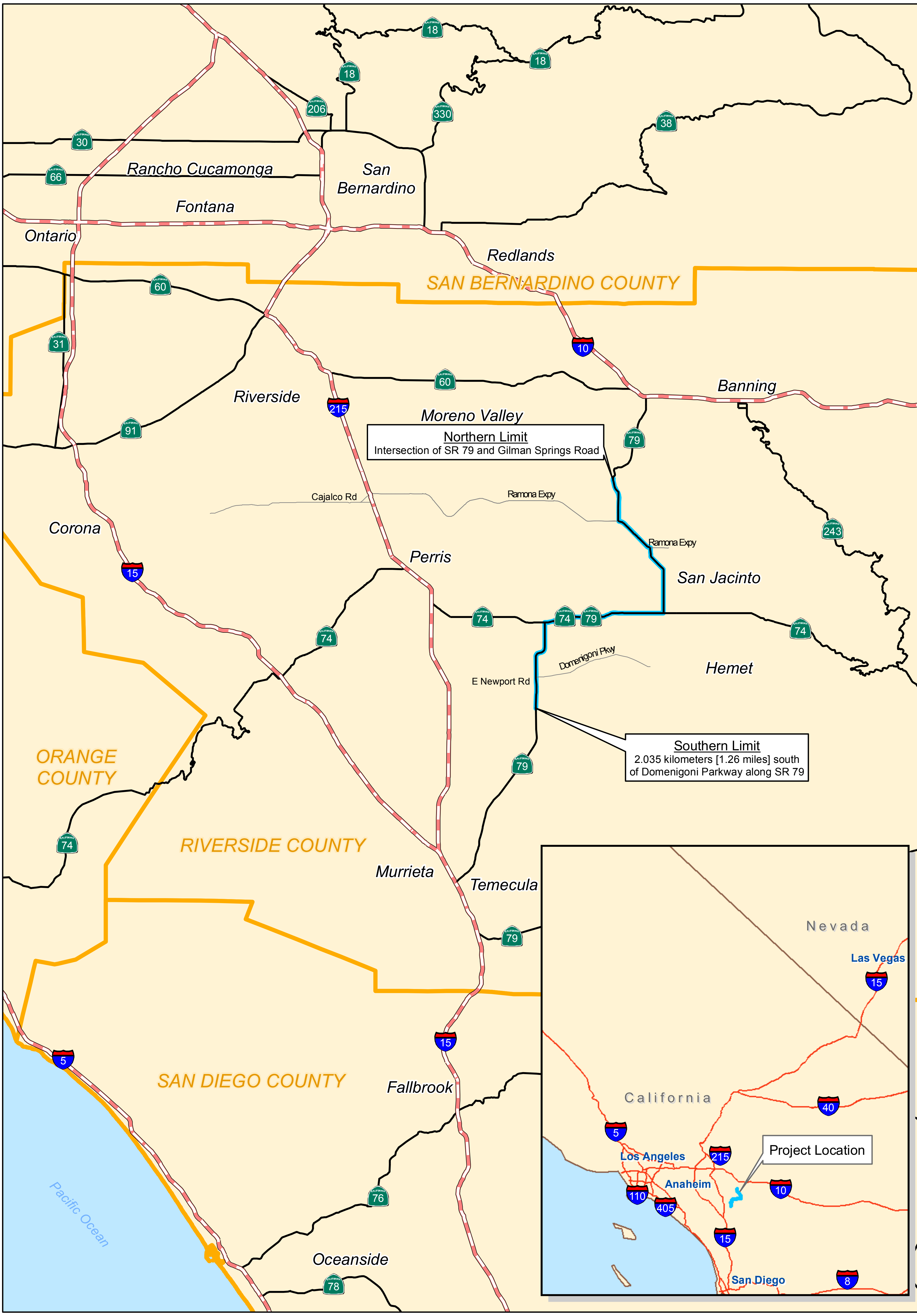
1.8.2.1 Alternative Corridor 1

Alternative Corridor 1 is comprised of 11 roadway segments that can be combined to form two Build alternatives. They are defined as Build Alternatives 1a and 1b. Build Alternative 1a is formed by the combination of Roadway Segments A, E, G, I, J, L, and N. Build Alternative 1b is formed by the combination of Roadway Segments B, C, G, I, K, M, and N. Alternative Corridor 1, including Build Alternatives 1a and 1b, and its study area are illustrated in Figure 1.8-2, Alternative Corridor 1.

1.8.2.2 Alternative Corridor 2

Alternative Corridor 2 is comprised of 11 roadway segments that can be combined to form two Build alternatives. They are defined as Build Alternatives 2a and 2b. Build Alternative 2a is formed by the combination of Roadway Segments A, F, H, I, K, L, and N. Build Alternative 2b is formed by the combination of Roadway Segments B, D, H, I, J, M, and N. Alternative Corridor 2, including Build Alternatives 2a and 2b, and its study area are illustrated in Figure 1.8-3, Alternative Corridor 2.



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LEGEND

- Existing State Route 79 Proposed for Realignment[CH]
- Interstate[ES]
- State Route[ES]
- Local Road[ES]
- County Boundary[CR]

Sources: CH - CH2M HILL; CR - County of Riverside; ES - ESRI

0 5 Miles

0 5 Kilometers

1:348,480

Figure 1.1-1
Regional Project Location
State Route 79 Realignment Project

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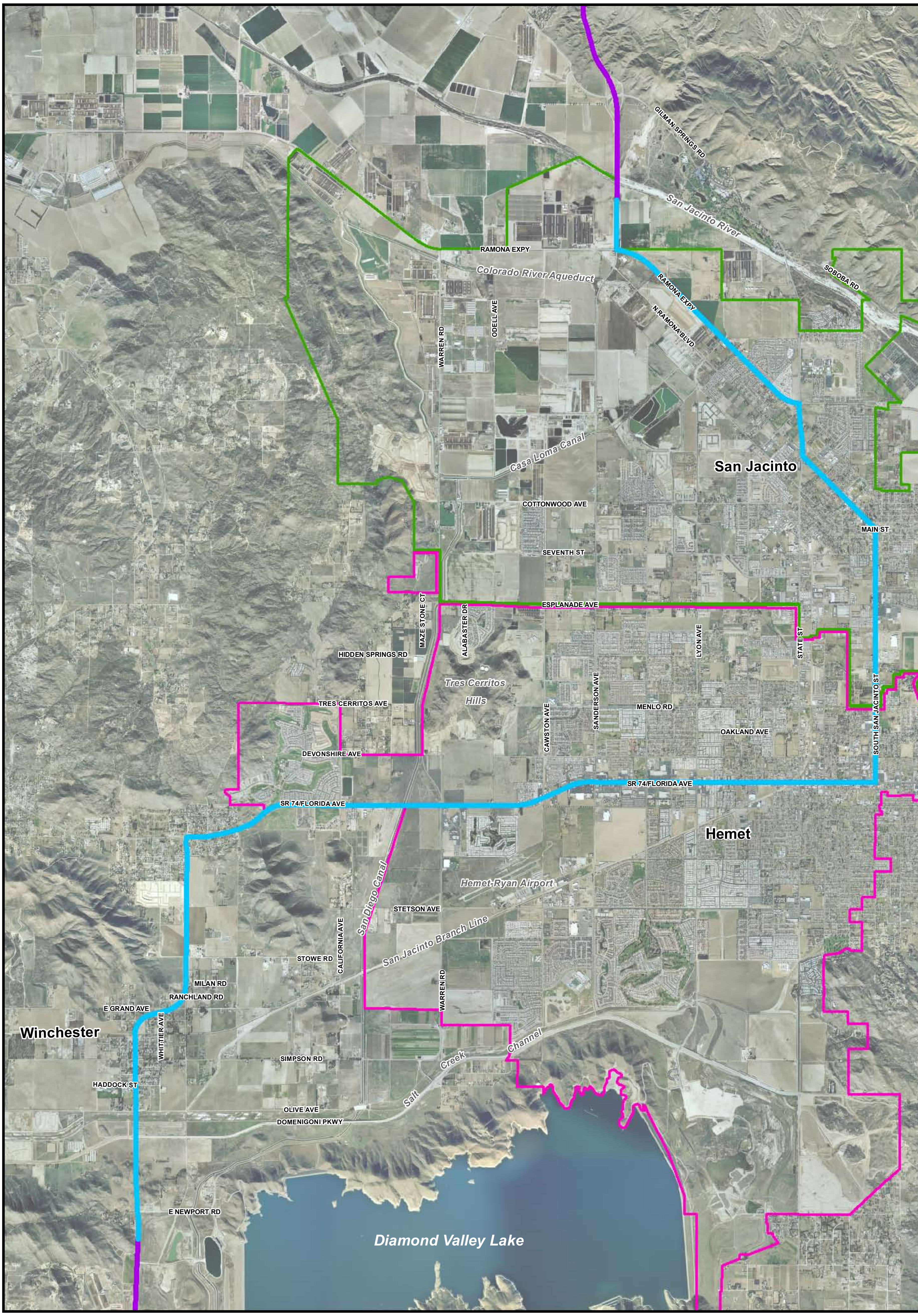
SCO171146.T3.05.09\1108 Appendix C - Figure 1.1-1 Regional Project Location.indd



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LEGEND

- Existing State Route 79 Proposed for Realignment[CH]
- Existing State Route 79 Not to be Improved[CH]
- City of Hemet[CR]
- City of San Jacinto[CR]

0 5,000 Feet

0 1,000 Meters

1:60,000

Sources: CH - CH2M HILL; CR - County of Riverside

Figure 1.1-2
Existing State Route 79
State Route 79 Realignment Project

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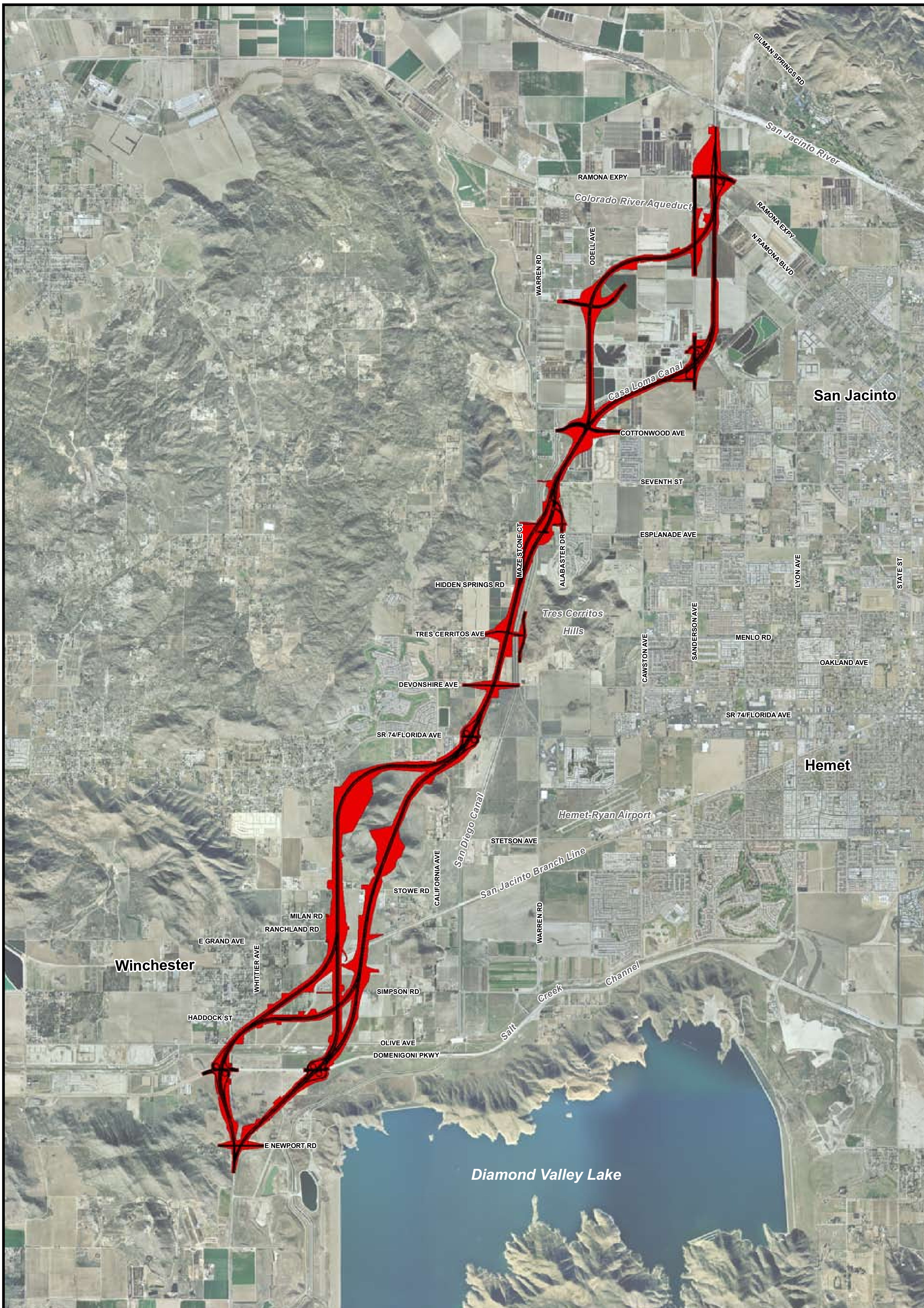

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LEGEND

Project Roadway and Local Street Improvements[CH]

Project Right-of-Way[CH]

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0 1,000 Meters

1:60,000

Source: CH - CH2M HILL

Figure 1.7-1
Build Alternatives
Opening Day
State Route 79 Realignment Project

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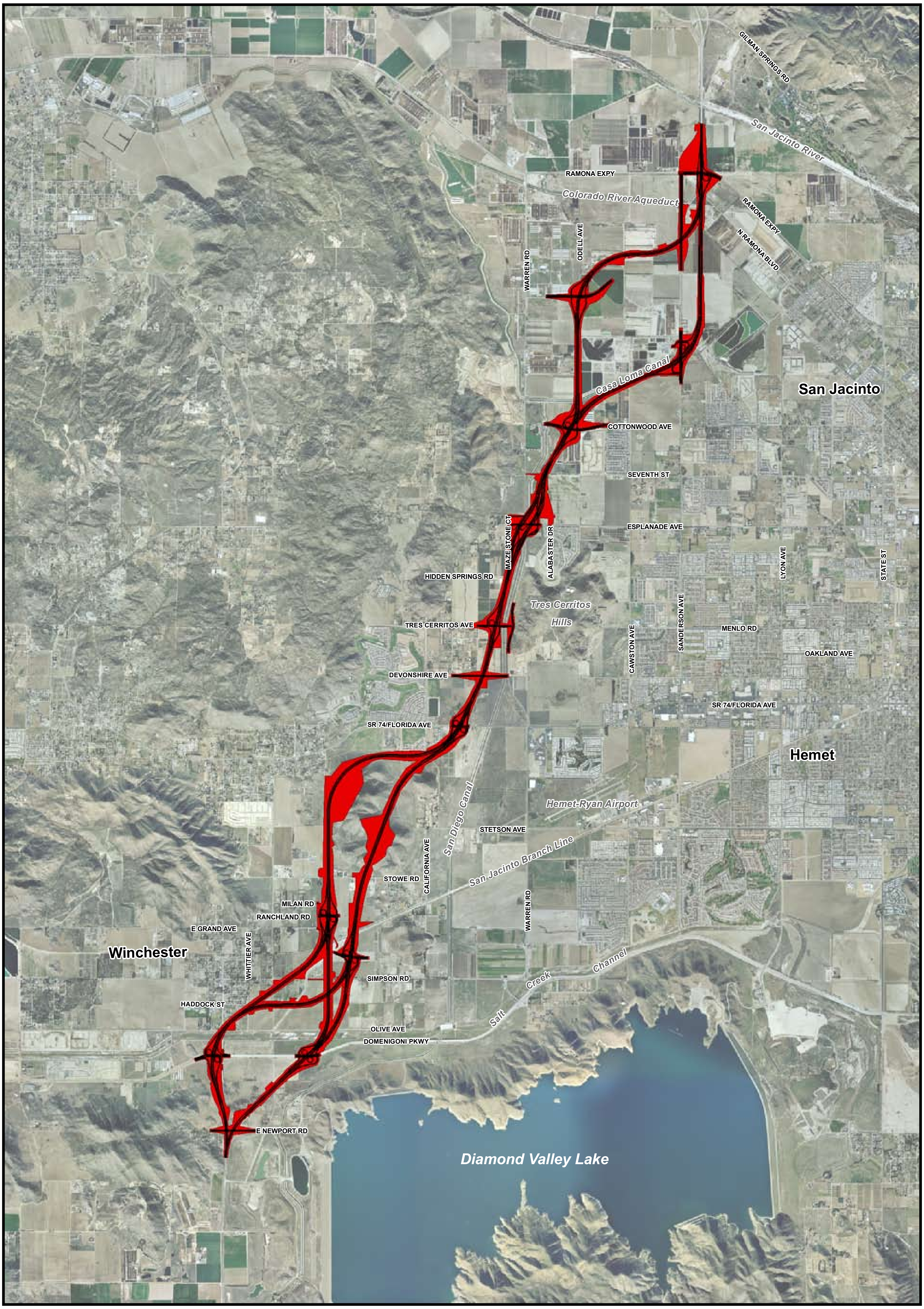

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LEGEND

- Project Roadway and Local Street Improvements[CH]
- Project Right-of-Way[CH]

0 5,000 Feet

0 1,000 Meters

1:60,000

Source: CH - CH2M HILL

Figure 1.7-2
Build Alternatives
20-Year Design Horizon
State Route 79 Realignment Project

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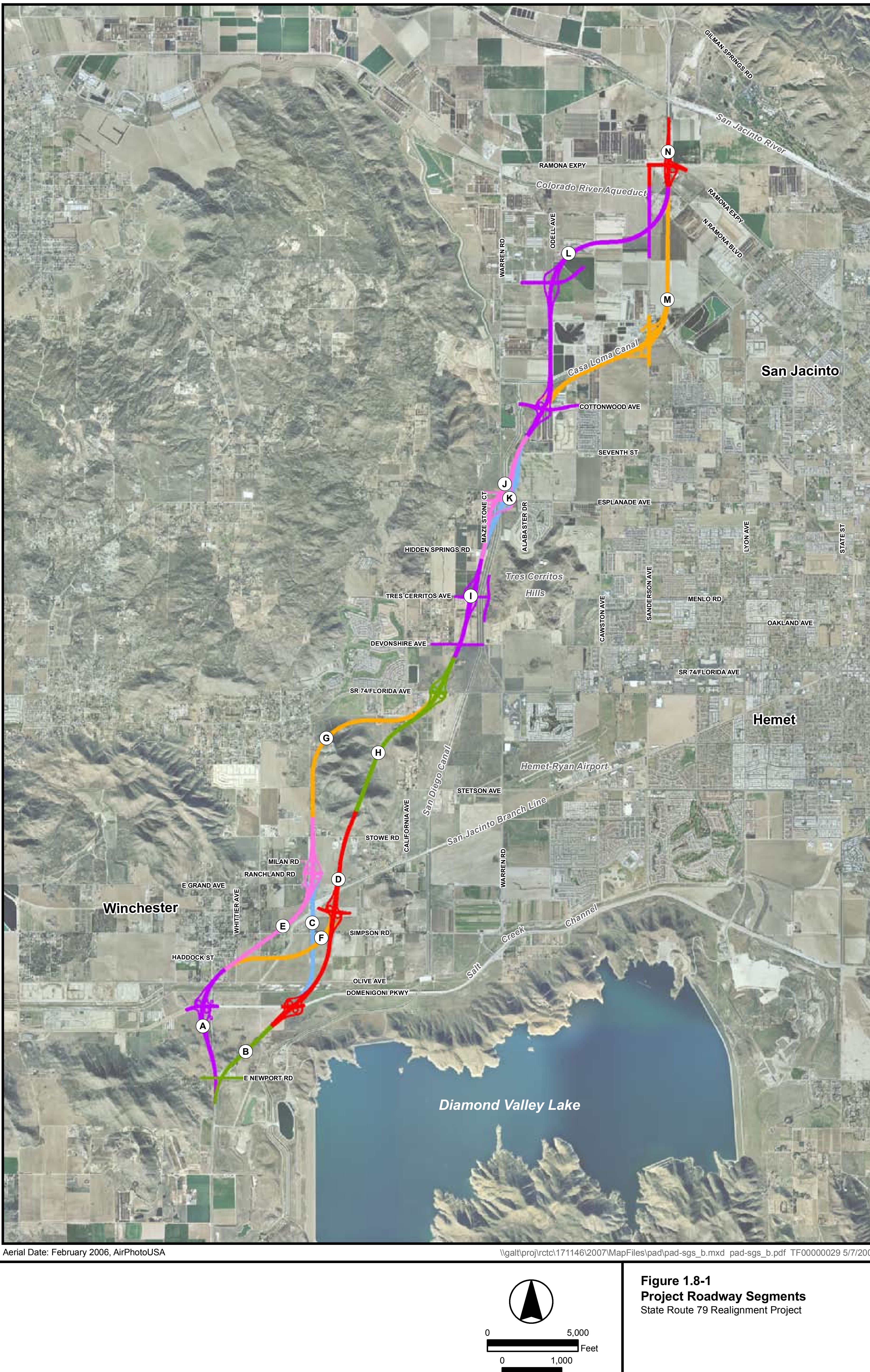

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Figure 1.8-1
Project Roadway Segments
State Route 79 Realignment Project

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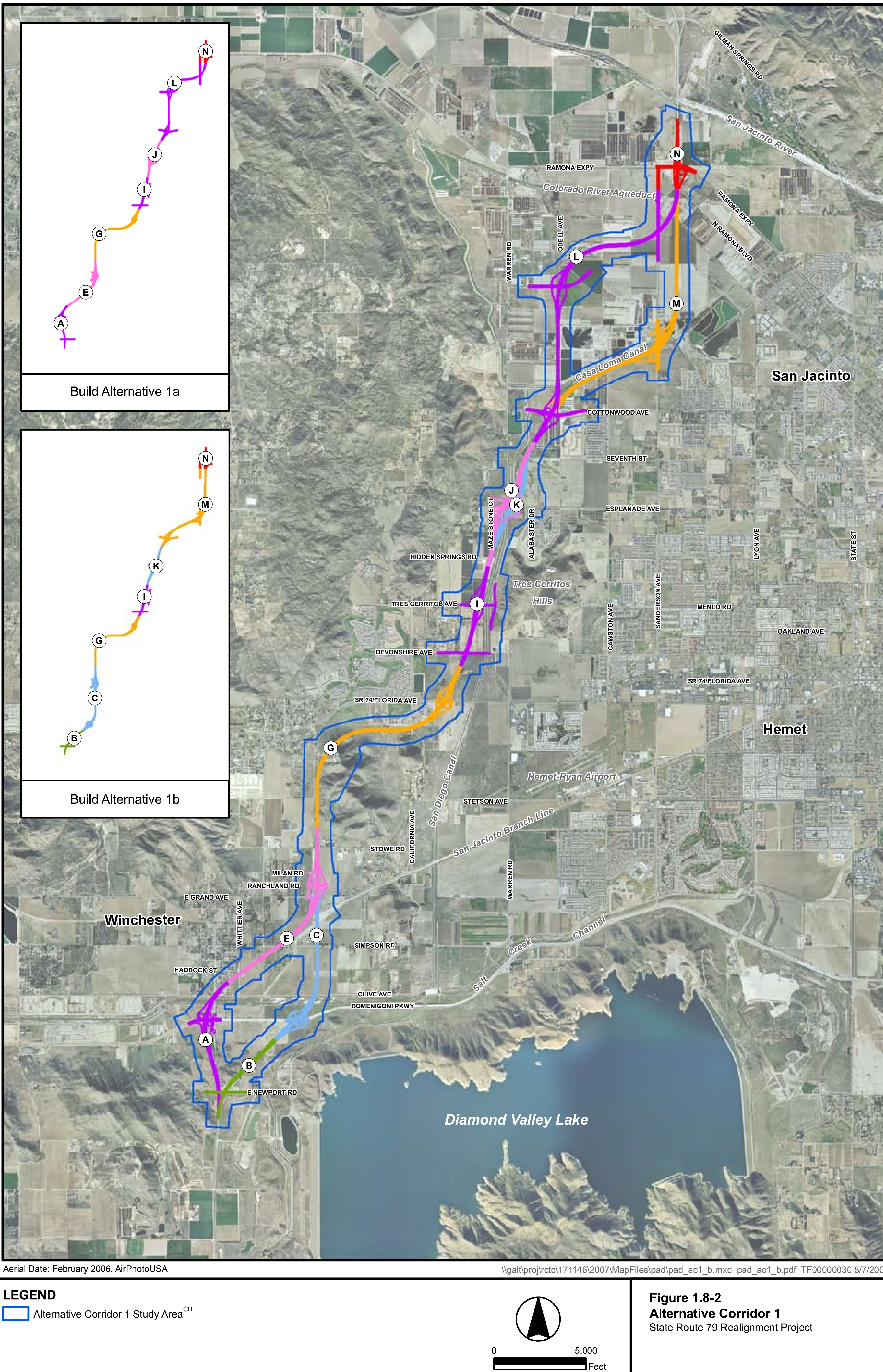

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LEGEND

Alternative Corridor 1 Study Area[CH]

0 5,000 Feet

0 1,000 Meters

1:60,000

Source: CH - CH2M HILL

Figure 1.8-2
Alternative Corridor 1
State Route 79 Realignment Project

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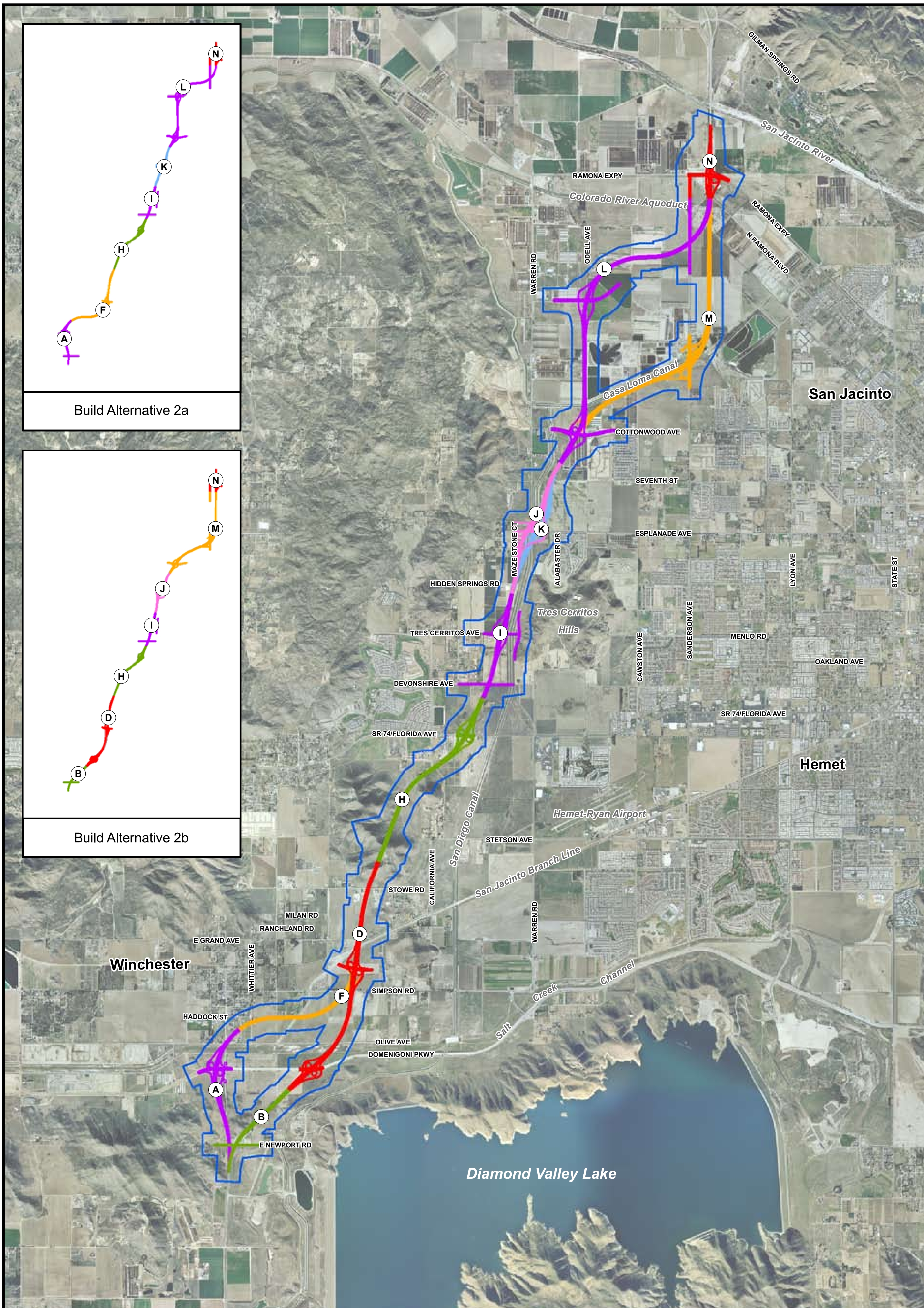
SCO171146.T3.05.09\1108 Appendix C - Figure 1.8-2 Alternative Corridor 1.indd



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LEGEND

Alternative Corridor 2 Study Area[CH]

0 5,000 Feet

0 1,000 Meters

1:60,000

Figure 1.8-3
Alternative Corridor 2
State Route 79 Realignment Project

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Source: CH - CH2M HILL

Chapter 2 Regulatory Background

On March 10, 2006, the United States Environmental Protection Agency (USEPA) issued amendments to the Transportation Conformity Rule to address localized impacts of particulate matter: "$PM_{2.5}$ and PM_{10} Hot-Spot Analyses in Project-level Transportation Conformity Determinations for the New $PM_{2.5}$ and Existing PM_{10} National Ambient Air Quality Standards" (71 FR 12468). This rule amendment requires the assessment of localized air quality impacts for federally funded or approved transportation projects in particulate matter less than 10 micrometers in aerodynamic diameter (PM_{10}) and particulate matter less than 2.5 micrometers in aerodynamic diameter ($PM_{2.5}$) nonattainment and maintenance areas deemed to be projects of air quality concern. This assessment of localized impacts (i.e., "hot spot analysis") examines potential air quality impacts on a scale smaller than an entire nonattainment or maintenance area. This type of analysis is a way of demonstrating that a transportation project meets Clean Air Act conformity requirements to support state and local air quality goals. The Project is located in a federal nonattainment area for both PM_{10} and $PM_{2.5}$ so localized impacts must be assessed.

USEPA specified in 40 *Code of Federal Regulations* (CFR) 93.123(b)(1) of the final rule that projects of air quality concern (POAQC) are certain highway and transit projects that involve significant levels of diesel vehicle traffic, or any other project that is identified in the $PM_{2.5}$ or PM_{10} State Implementation Plan as a localized air quality concern. According to 40 CFR 93.123(b)(2) and (4), a quantitative analysis for applicable projects is not required until USEPA releases modeling guidance in the *Federal Register*. To date, USEPA has not promulgated modeling guidance in the *Federal Register*. However, a qualitative hot spot analysis is required for POAQC. This qualitative analysis of localized PM_{10} and $PM_{2.5}$ impacts was prepared because the Project has the potential to be a POAQC. Although the Project would not result in a significant increase in the number of diesel vehicles, the magnitude of the Project and the potential to move emissions sources closer to receptors were the criteria used to conclude the Project may be a POAQC.

The project-level hot spot assessment was conducted to assess whether the Project would cause or contribute to any new localized PM_{10} or $PM_{2.5}$ violations, increase the frequency or severity of any existing violations, or delay timely attainment of the PM_{10} or $PM_{2.5}$ National Ambient Air Quality Standard (NAAQS). The following NAAQS were used to evaluate the Project:

- PM_{10} 24-hour standard of 150 micrograms per cubic meter ($\mu g/m^3$)
- $PM_{2.5}$ 24-hour standard of 65 $\mu g/m^3$
- $PM_{2.5}$ annual standard of 15 $\mu g/m^3$

Although a new 24-hour $PM_{2.5}$ standard of 35 $\mu g/m^3$ became effective in December 2006, transportation conformity for the 2006 24-hour $PM_{2.5}$ standard does not apply until 1 year after the effective date of nonattainment designations. USEPA expects designations for the 2006 24-hour $PM_{2.5}$ standard, based on 2007-2009 air quality data, to take effect in 2010 (USEPA 2006).

Chapter 3 Impact Analysis

3.1 Methodology

To support the United States Environmental Protection Agency (USEPA) March 2006 rulemaking, Federal Highway Administration and USEPA prepared a guidance document, *Transportation Conformity Guidance for Qualitative Hot-spot Analyses in* $PM_{2.5}$ *and* PM_{10} *Nonattainment and Maintenance Areas* (*March 2006*) [hot spot guide], to assist with meeting the hot spot analysis requirements (USEPA 2006). According to the hot spot guide, a qualitative particulate matter (PM) hot spot analysis should include information such as description of the Realignment of State Route 79 (SR 79) (Project or proposed Project), description of the existing conditions, description of the method used to conduct the hot spot analysis, and summary of emissions from the Project considered in the analysis.

This qualitative analysis was based on considering nearby monitoring data, directly emitted emissions including tailpipe, brake wear, and tire wear, and re-entrained road dust. Direct emissions were estimated using vehicle miles traveled (VMT) and EMFAC2007 (version 2.3) emission factors. Re-entrained road dust emissions were included in the analysis of particulate matter less than 10 micrometers in aerodynamic diameter (PM_{10}) based on the hot spot guide (USEPA 2006). For $PM_{2.5}$, re-entrained road dust emissions are only to be considered if the USEPA or the State air agency has made a finding that these emissions are a significant contributor to the $PM_{2.5}$ air quality problem (USEPA 2006). The USEPA published guidance on the use of AP-42 for re-entrained road dust for state implementation plan (SIP) development and conformity; therefore, re-entrained $PM_{2.5}$ emissions were also considered in this analysis (USEPA 2007b). Re-entrained road dust emissions were estimated using the USEPA *Compilation of Air Pollutant Emission Factors* (AP-42) Chapter 13.2.1 Paved Roads (USEPA 2006).

Construction-related $PM_{2.5}$ and PM_{10} emissions were not included in this hot spot analysis because the construction period for the Project would be less than 5 years (see 40 *Code of Federal Regulations* 93.123(c)(5)). Project construction activities are anticipated to require 39 to 40 months depending on which build alternative is selected. Finally, secondary $PM_{2.5}$ emissions were not included because these emissions would be associated with regional impacts rather than resulting in a localized impact.

3.2 Existing Conditions

This section will provide a summary of PM_{10} and $PM_{2.5}$ ambient monitoring data closest to the Project area and the existing traffic conditions for the year 2004 as reported in the *Draft Traffic Analysis for State Route 79 Realignment Project* (RCTC 2006).

3.2.1 PM_{10} Ambient Air Quality

The Lake Elsinore monitoring station is the station located closest to the Project area; however, PM_{10} is not monitored at this station. Therefore, monitoring data from the next two closest stations, the Perris station and the Riverside-Rubidoux station, were used to evaluate PM_{10} concentrations. The locations of the monitoring stations relative to the proposed Project are presented in Figure 3.2-1, Monitoring Station Locations. The Perris monitoring station is located approximately 23 kilometers (km) (14 miles [mi]) to the northwest of the Project area. The Riverside-Rubidoux station is located approximately 48 km (30 mi) to the northwest of the Project area. The monitored data for the past 10 years are summarized in Table 3.2-1. The PM_{10} concentrations measured at the Perris station exceeded the federal 24-hour standard of 150 micrograms per square meter ($\mu g/m^3$) once in the past 10 years. The PM_{10} concentrations measured at the Riverside-Rubidoux station have exceeded the federal 24-hour standard approximately two times in the past 10 years; however, concentrations have shown a downward trend in the past 3 years.

Table 3.2-1 PM_{10} Monitoring Station Data

Year	24-Hour Measured Concentration Perris Station ($\mu g/m^3$)	24-Hour Measured Concentration Riverside-Rubidoux Station ($\mu g/m^3$)
1998	98	116
1999	112	153
2000	87	139
2001	86	136
2002	100	130
2003	142	164
2004	83	137

Table 3.2-1 PM_{10} Monitoring Station Data

Year	24-Hour Measured Concentration Perris Station (μg/m^3)	24-Hour Measured Concentration Riverside-Rubidoux Station (μg/m^3)
2005	80	123
2006	125	109
2007	167	118

Source: California Air Resources Board http://www.arb.ca.gov/adam/welcome.html, accessed October 15, 2008

Note: The Perris station is located at 237 N D Street, Perris, CA. The Riverside-Rubidoux is located at 5888 Mission Blvd, Rubidoux, CA. The data reported for 2007 represents the 2nd high value. The first high values measured at both stations occurred on October 21, 2007 which coincides with three wildfires that occurred in Riverside County in October 2007. Therefore, it was assumed the first high values resulted from the wildfire and would not be representative of ambient concentrations.

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3.2.2 $PM_{2.5}$ Ambient Air Quality

$PM_{2.5}$ concentrations are not measured at the monitoring stations located closest to the Project area (Perris Monitoring Station and the Lake Elsinore Monitoring Station). The closest monitoring stations that monitor $PM_{2.5}$ concentrations are the Riverside-Magnolia and Riverside-Rubidoux stations. The Riverside-Magnolia station is located approximately 42 km (26 mi) to the northwest of the Project area. The Riverside-Rubidoux station is located approximately 48 km (30 mi) to the northwest of the Project area. The monitored data for the past 9 years are summarized in Table 3.2-2. During each of the past 9 years, $PM_{2.5}$ concentrations have exceeded the applicable federal 24-hour standard of 65 μg/m^3. In addition, a decrease in $PM_{2.5}$ concentrations has only been reported for the most recent years (2006 and 2007) of data.

Table 3.2-2 $PM_{2.5}$ Monitoring Station Data

Year	Riverside-Magnolia Station		Riverside-Rubidoux Station	
	24-Hour Measured Concentration (μg/m^3)	Annual Average (μg/m^3)	24-Hour Measured Concentration (μg/m^3)	Annual Average (μg/m^3)
1999	90	26.7	111	30.2
2000	79	25.3	120	28.3
2001	75	28.2	98	31.0
2002	76	27.1	78	27.5

Table 3.2-2 $PM_{2.5}$ Monitoring Station Data

Year	Riverside-Magnolia Station		Riverside-Rubidoux Station	
	24-Hour Measured Concentration (µg/m^3)	Annual Average (µg/m^3)	24-Hour Measured Concentration (µg/m^3)	Annual Average (µg/m^3)
2003	73	22.6	104	24.8
2004	94	20.8	92	22.1
2005	95	17.9	99	20.9
2006	55	16.9	69	19.0
2007	69	18.3	76	19.0

Source: California Air Resources Board http://www.arb.ca.gov/adam/welcome.html, accessed October 15, 2008

Note: The Riverside-Magnolia station is located at 7002 Magnolia Avenue, Riverside, CA. The Riverside-Rubidoux is located at 5888 Mission Blvd, Rubidoux, CA.

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To evaluate whether the Project may contribute to an exceedance of the PM_{10} or $PM_{2.5}$ National Ambient Air Quality Standard (NAAQS), the existing traffic volumes near the monitoring stations were also reviewed. The Perris monitoring station is located approximately 0.3 km (0.2 mi) west of Interstate 215 (I-215). According to the data contained in the *Annual Average Daily Truck Traffic on the California State Highway System*, the vehicle annual average daily traffic (AADT) total on I-215 near the Perris monitoring station (for the year 2005) was 94,000 (Department 2006). In addition, the truck AADT was 11,280 or 12 percent of the total AADT (Department 2006). The Riverside-Rubidoux monitoring station is located approximately 0.5 km (0.34 mi) south of SR 60. According to the data contained in the *Annual Average Daily Truck Traffic on the California State Highway System*, the vehicle AADT total on SR 60 near the Riverside-Rubidoux monitoring station (for the year 2005) was 126,000 (Department 2006). In addition, the truck AADT was 15,120 or 12 percent of the total AADT (Department 2006). The Riverside-Magnolia monitoring station is located approximately 0.8 km (0.5 mi) north of SR 91. According to the data contained in the *Annual Average Daily Truck Traffic on the California State Highway System*, the vehicle AADT total on SR 91 near the Riverside-Magnolia monitoring station (for the year 2005) was 195,000 (Department 2006). In addition, the truck AADT was 16,536 or 8.5 percent of the total AADT (Department 2006). The AADT near the three monitoring stations is much higher than the existing Project AADT, which is presented in the following section.

3.2.3 Traffic Conditions

The existing traffic condition for the Project is the year 2004 (RCTC 2006). Existing truck percentages on the arterial system vary from 8 percent to 19 percent (RCTC 2006). However, as the area around the Project becomes more urbanized, the truck percentages are expected to decrease to approximately 7 percent for the No Build Alternative, Build Alternative 1, and Build Alternative 2 (RCTC 2006). During the peak hours, the majority of the traffic using the system would be commute traffic (gasoline-fueled automobiles). The daily traffic volumes and level of service (LOS) for the existing condition (year 2004) are summarized in Table 3.2-3.

Table 3.2-3 Existing Average Daily Traffic Volumes and LOS (Year 2004)

Roadway Segment	Daily Traffic Volume	LOS
Winchester Road (SR 79) between:		
1. Newport Avenue and Domenigoni Parkway	27,162	F
2. Domenigoni Parkway and Simpson Avenue	8,280	C or better
3. Simpson Avenue and Florida Avenue	7,927	C or better
Florida Avenue (SR 74/SR 79) between:		
4. Amanda Avenue (just west of Winchester Road) and Winchester Road	30,722	C or better
5. Winchester Road and Warren Road (SR 79)	29,897	C or better
6. Warren Road and Sanderson Avenue (SR 79)	27,879	C or better
7. Sanderson Avenue and State Street (SR 79)	32,972	D
8. State Street and San Jacinto Street (SR 79)	28,407	D
9. San Jacinto Street and Columbia Street	24,713	C or better
San Jacinto Street between:		
10. Mayberry Street and Florida Avenue	12,893	E
11. Florida Avenue and E. Oakland Avenue (SR 79)	14,547	C or better
12. Menlo Avenue and Commonwealth Avenue (SR 79)	15,153	C or better
13. Esplanade Avenue and Seventh Street (SR 79)	14,576	C or better
14. Seventh Street and Main Street (SR 79)	13,676	F
Ramona Boulevard between:		
15. Main Street and State Street (SR 79)	9,846	C or better
16. State Street and Sanderson Avenue	4,757	C or better
State Street between:		
17. Mayberry Street and Florida Avenue	12,231	E

Table 3.2-3 Existing Average Daily Traffic Volumes and LOS (Year 2004)

Roadway Segment	Daily Traffic Volume	LOS
18. Florida Avenue and Oakland Avenue	16,808	C or better
19. Menlo Avenue and Esplanade Avenue	16,997	C or better
20. Esplanade Avenue and Cottonwood Avenue	16,135	C or better
21. Cottonwood Avenue and Ramona Boulevard	17,697	C or better
22. Ramona Boulevard and Ramona Expressway (SR 79)	19,022	C or better
Ramona Expressway between:		
23. San Jacinto Street and State Street	14,185	C or better
24. State Street and Sanderson Avenue (SR 79)	20,857	F
25. Sanderson Avenue and Warren Road	16,704	E
26. Warren Road and Bridge Street	15,740	D
Warren Road between:		
27. Domenigoni Parkway and Simpson Road	6,413	C or better
28. Simpson Road and Harrison Avenue	12,315	E
29. Harrison Avenue and Stetson Avenue	10,702	D
30. Stetson Avenue and Florida Avenue	13,268	F
31. Florida Avenue and Devonshire Avenue	9,988	C or better
32. Esplanade Avenue and Cottonwood Avenue	8,002	C or better
33. Cottonwood Avenue and Ramona Expressway	8,319	C or better
Sanderson Avenue between:		
34. Domenigoni Parkway and Harrison Avenue	11,503	C or better
35. Harrison Avenue and Stetson Avenue	21,993	C or better
36. Stetson Avenue and Florida Avenue	25,917	C or better
37. Florida Avenue and Devonshire Avenue	24,628	C or better
38. Menlo Avenue and Esplanade Avenue	19,408	C or better
39. Esplanade Avenue and Cottonwood Avenue	14,040	D
40. Cottonwood Avenue and Ramona Boulevard	14,117	D
41. Ramona Boulevard and Ramona Expressway	12,075	C or better
42. Ramona Expressway and Gilman Springs Road (SR 79)	28,531	D
Lamb Canyon Road (SR 79):		
43. Gilman Springs Road and Interstate 10	33,945	E
Domenigoni Parkway between:		
44. Winchester Road and Warren Road	19,962	C or better
45. Warren Road and Sanderson Avenue	16,757	C or better
Cottonwood Avenue between:		
46. Warren Road and Sanderson Avenue	1,204	C or better

Table 3.2-3 Existing Average Daily Traffic Volumes and LOS (Year 2004)

Roadway Segment	Daily Traffic Volume	LOS
47. Lyon Avenue and State Street	4,567	C or better

Source: Riverside County Transportation Commission, *Draft Traffic Study*, January 2006
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3.3 Future Conditions (Opening Year 2015 and Horizon Year 2035)

This section will evaluate whether the Project would cause or contribute to any new localized PM_{10} or $PM_{2.5}$ violations, increase the frequency or severity of any existing violations, or delay timely attainment of the PM_{10} or $PM_{2.5}$ standards by discussing ambient concentrations, comparing traffic conditions between the alternatives, and providing an estimate of emissions. Two future years were evaluated; the year 2015 when the alignment would be open to traffic and the planning horizon year 2035. These two years were evaluated to determine which year may result in peak emissions and when a new violation or worsening of an existing violation would most likely occur. The year 2015 would likely result in peak emissions due to higher vehicle emissions when compared to the traffic increases expected in 2035. Also, the $PM_{2.5}$ standard attainment deadline for the South Coast Air Basin is the year 2014. Therefore, evaluating the year open to traffic (2015) would address when a worsening of an existing violation may occur.

3.3.1 Potential Contribution to PM_{10} and $PM_{2.5}$ Ambient Concentrations

The three monitoring stations used to establish the existing ambient concentrations show that both PM_{10} and $PM_{2.5}$ (see Tables 3.2-1 and 3.2-2) have exceeded the NAAQS at some time in the past 9 years. However, the total AADT near these monitoring stations is similar to or higher than the AADT expected in the years 2015 and 2035 for the Project. Peak direct emissions due to increased traffic volumes resulting from the Project would be expected in the year 2015 but would be offset by improvements to the operation of the facility (see Section 3.3.3). Since total directly emitted $PM_{2.5}$ accounts for approximately 25 percent of all ambient $PM_{2.5,}$ only a portion of the peak emissions would actually result in an increase in ambient concentrations (SCAQMD 2007). Therefore, peak emissions resulting from the Project would only partially contribute to ambient PM_{10} and $PM_{2.5}$ concentrations. The Project would be expected to result in fewer emissions than the roadways near the monitoring stations and would not be expected to cause or contribute to a new localized PM_{10} or $PM_{2.5}$ violation or increase the frequency or severity of any existing violations.

3.3.2 Comparison to Existing Traffic Conditions

The traffic volumes and LOS for the No Build Alternative, Build Alternative 1, and Build Alternative 2 in the years 2015 and 2035 are presented in Tables 3.3-1 and 3.3-2. LOS was not calculated for the year 2015 because the specific implementation timeframe for other (non-Project) improvements is not known. According to the *Draft Traffic Analysis for State Route 79 Realignment Project*, Build Alternative 2 is essentially the same as Build Alternative 1 except that the Esplanade Interchange would be located south of the Tres Cerritos and Warren Road would connect to between Florida Avenue and Esplanade Avenue (RCTC 2006). Therefore, the traffic volumes presented in Tables 3.3-1 and 3.3-1 for Build Alternative 2 represent only those segments that would be affected by the relocation of the Esplanade Interchange.

Although the traffic volumes for Build Alternative 1 and Build Alternative 2 would increase when compared to the existing condition, the LOS would improve on most roadway segments (see Table 3.2-3 for existing traffic data). The increase in LOS is due to reduced traffic congestion and an increase in vehicle speeds, which typically results in lower emissions. Therefore, the Project would not be expected to cause or contribute to a new localized PM_{10} or $PM_{2.5}$ violation or increase the frequency or severity of any existing violations.

Table 3.3-1 Future Average Daily Traffic Volumes and LOS (Year 2015)

Roadway Segment	No Build Alternative (2015) Daily Traffic Volume	Build Alternative 1 (2015) Daily Traffic Volume	Build Alternative 2 (2015) Daily Traffic Volume
Winchester Road (SR 79) between:			
1. Newport Avenue and Domenigoni Parkway	30,200	600	Same as Build Alternative 1
2. Domenigoni Parkway and Simpson Avenue	14,200	1,600	
3. Simpson Avenue and Florida Avenue	13,400	1,900	
Florida Avenue (SR 74/SR 79) between:			
4. Amanda Avenue (just west of Winchester Road) and Winchester Road	34,100	23,100	Same as Build Alternative 1
5. Winchester Road and Warren Road (SR 79)	37,700	24,100	
6. Warren Road and Sanderson Avenue (SR 79)	33,900	27,000	28,500
7. Sanderson Avenue and State Street (SR 79)	34,100	29,600	Same as Build Alternative 1
8. State Street and San Jacinto Street (SR 79)	29,400	25,100	
9. San Jacinto Street and Columbia Street	25,600	21,900	
San Jacinto Street between:			
10. Mayberry Street and Florida Avenue	14,200	13,600	Same as Build Alternative 1
11. Florida Avenue and E. Oakland Avenue (SR 79)	16,000	13,900	
12. Menlo Avenue and Commonwealth Avenue (SR 79)	19,000	20,900	
13. Esplanade Avenue and Seventh Street (SR 79)	16,500	14,900	
14. Seventh Street and Main Street (SR 79)	14,600	11,800	

Table 3.3-1 Future Average Daily Traffic Volumes and LOS (Year 2015)

Roadway Segment	No Build Alternative (2015) Daily Traffic Volume	Build Alternative 1 (2015) Daily Traffic Volume	Build Alternative 2 (2015) Daily Traffic Volume
Ramona Boulevard between:			
15. Main Street and State Street (SR 79)	10,600	10,500	Same as Build Alternative 1
16. State Street and Sanderson Avenue	5,200	5,700	
State Street between:			
17. Mayberry Street and Florida Avenue	13,400	14,300	Same as Build Alternative 1
18. Florida Avenue and Oakland Avenue	18,400	15,200	
19. Menlo Avenue and Esplanade Avenue	17,600	16,200	
20. Esplanade Avenue and Cottonwood Avenue	16,700	12,900	
21. Cottonwood Avenue and Ramona Boulevard	18,300	18,000	
22. Ramona Boulevard and Ramona Expressway (SR 79)	19,700	19,300	
Ramona Expressway between:			
23. San Jacinto Street and State Street	19,000	22,500	Same as Build Alternative 1
24. State Street and Sanderson Avenue (SR 79)	25,300	25,000	
25. Sanderson Avenue and Warren Road	21,000	34,400	
26. Warren Road and Bridge Street	18,700	39,100	

Table 3.3-1   Future Average Daily Traffic Volumes and LOS (Year 2015)

Roadway Segment	No Build Alternative (2015) Daily Traffic Volume	Build Alternative 1 (2015) Daily Traffic Volume	Build Alternative 2 (2015) Daily Traffic Volume
Warren Road between:			
27. Domenigoni Parkway and Simpson Road	7,000	5,800	Same as Build Alternative 1
28. Simpson Road and Harrison Avenue	13,500	5,500	
29. Harrison Avenue and Stetson Avenue	11,700	4,200	
30. Stetson Avenue and Florida Avenue	14,200	6,900	7,100
31. Florida Avenue and Devonshire Avenue	11,700	1,400	1,500
32. Esplanade Avenue and Cottonwood Avenue	11,300	5,900	4,200
33. Cottonwood Avenue and Ramona Expressway	10,800	8,800	8,900
Sanderson Avenue between:			
34. Domenigoni Parkway and Harrison Avenue	16,500	4,500	Same as Build Alternative 1
35. Harrison Avenue and Stetson Avenue	23,500	7,100	
36. Stetson Avenue and Florida Avenue	29,100	13,100	12,800
37. Florida Avenue and Devonshire Avenue	28,300	15,300	16,700
38. Menlo Avenue and Esplanade Avenue	23,600	17,600	18,500
39. Esplanade Avenue and Cottonwood Avenue	17,700	19,100	19,000
40. Cottonwood Avenue and Ramona Boulevard	16,700	18,600	18,700
41. Ramona Boulevard and Ramona Expressway	15,300	900	Same as Build Alternative 1

Table 3.3-1 Future Average Daily Traffic Volumes and LOS (Year 2015)

Roadway Segment	No Build Alternative (2015)	Build Alternative 1 (2015)	Build Alternative 2 (2015)
	Daily Traffic Volume	Daily Traffic Volume	Daily Traffic Volume
42. Ramona Expressway and Gilman Springs Road (SR 79)	34,500	33,400	
Lamb Canyon Road (SR 79):			
43. Gilman Springs Road and Interstate 10	38,800	42,900	Same as Build Alternative 1
Domenigoni Parkway between:			
44. Winchester Road and Warren Road	24,200	5,500	Same as Build Alternative 1
45. Warren Road and Sanderson Avenue	20,600	9,300	Same as Build Alternative 1
Cottonwood Avenue between:			
46. Warren Road and Sanderson Avenue	1,500	3,100	Same as Build Alternative 1
47. Lyon Avenue and State Street	5,700	5,000	

Table 3.3-1 Future Average Daily Traffic Volumes and LOS (Year 2015)

Roadway Segment	No Build Alternative (2015) Daily Traffic Volume	Build Alternative 1 (2015) Daily Traffic Volume	Build Alternative 2 (2015) Daily Traffic Volume
SR 79 (Freeway) between:			
48. Newport Avenue and Domenigoni Parkway	Segments would not exist under No Build Alternative	31,000	Same as Build Alternative 1
49. Domenigoni Parkway and Simpson Avenue		46,200	
50. Simpson Avenue and Florida Avenue		37,400	36,700
51. Florida Avenue to Menlo Avenue		36,400	32,200
52. Menlo Avenue to Esplanade Avenue		36,400	29,100
53. Esplanade Avenue to Cottonwood Avenue		2,7900	29,100
54. Cottonwood Avenue to Sanderson Avenue		22,800	22,700
55. Sanderson Avenue to Ramona Boulevard		40,600	40,500
56. Ramona Boulevard to (just north of SR 79 / CRC interchange)		37,500	36,700

Source: Riverside County Transportation Commission, *Draft Traffic Study*, January 2006

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Table 3.3-2 Future Average Daily Traffic Volumes and LOS (Year 2035)

<table>
<tr><th rowspan="2">Roadway Segment</th><th colspan="2">No Build Alternative (2035)</th><th colspan="2">Build Alternative 1 (2035)</th><th colspan="2">Build Alternative 2 (2035)</th></tr>
<tr><th>Daily Traffic Volume</th><th>LOS</th><th>Daily Traffic Volume</th><th>LOS</th><th>Daily Traffic Volume</th><th>LOS</th></tr>
<tr><td colspan="7">Winchester Road (SR 79) between:</td></tr>
<tr><td>1. Newport Avenue and Domenigoni Parkway</td><td>36,762</td><td>F</td><td>1,200</td><td>C or better</td><td colspan="2" rowspan="3">Same as Build Alternative 1</td></tr>
<tr><td>2. Domenigoni Parkway and Simpson Avenue</td><td>38,181</td><td>F</td><td>3,377</td><td>C or better</td></tr>
<tr><td>3. Simpson Avenue and Florida Avenue</td><td>35,057</td><td>F</td><td>3,894</td><td>C or better</td></tr>
<tr><td colspan="7">Florida Avenue (SR 74/SR 79) between:</td></tr>
<tr><td>4. Amanda Avenue (just west of Winchester Road) and Winchester Road</td><td>41,316</td><td>C or better</td><td>27,962</td><td>C or better</td><td colspan="2">Same as Build Alternative 1</td></tr>
<tr><td>5. Winchester Road and Warren Road (SR 79)</td><td>57,497</td><td>E</td><td>29,238</td><td>C or better</td><td>29,168</td><td>C or better</td></tr>
<tr><td>6. Warren Road and Sanderson Avenue (SR 79)</td><td>48,422</td><td>C or better</td><td>32,758</td><td>C or better</td><td>34,568</td><td>C or better</td></tr>
<tr><td>7. Sanderson Avenue and State Street (SR 79)</td><td>36,269</td><td>F</td><td>35,928</td><td>F</td><td colspan="2" rowspan="3">Same as Build Alternative 1</td></tr>
<tr><td>8. State Street and San Jacinto Street (SR 79)</td><td>31,248</td><td>D</td><td>30,434</td><td>D</td></tr>
<tr><td>9. San Jacinto Street and Columbia Street</td><td>27,184</td><td>C or better</td><td>26,568</td><td>C or better</td></tr>
</table>

Table 3.3-2 Future Average Daily Traffic Volumes and LOS (Year 2035)

Roadway Segment	No Build Alternative (2035)		Build Alternative 1 (2035)		Build Alternative 2 (2035)	
	Daily Traffic Volume	LOS	Daily Traffic Volume	LOS	Daily Traffic Volume	LOS
San Jacinto Street between:						
10. Mayberry Street and Florida Avenue	16,761	C or better	16,904	C or better	Same as Build Alternative 1	
11. Florida Avenue and E. Oakland Avenue (SR 79)	18,911	C or better	17,294	C or better		
12. Menlo Avenue and Commonwealth Avenue (SR 79)	28,633	F	26,081	F		
13. Esplanade Avenue and Seventh Street (SR 79)	20,790	D	18,546	C or better		
14. Seventh Street and Main Street (SR 79)	16,411	C or better	14,728	C or better		
Ramona Boulevard between:						
15. Main Street and State Street (SR 79)	12,144	C or better	12,199	C or better	Same as Build Alternative 1	
16. State Street and Sanderson Avenue	6,184	C or better	6,657	C or better		

Table 3.3-2 Future Average Daily Traffic Volumes and LOS (Year 2035)

Roadway Segment	No Build Alternative (2035)		Build Alternative 1 (2035)		Build Alternative 2 (2035)	
	Daily Traffic Volume	LOS	Daily Traffic Volume	LOS	Daily Traffic Volume	LOS
State Street between:						
17. Mayberry Street and Florida Avenue	15,900	C or better	15,713	C or better	Same as Build Alternative 1	
18. Florida Avenue and Oakland Avenue	21,850	D	16,797	C or better		
19. Menlo Avenue and Esplanade Avenue	18,697	C or better	17,905	C or better		
20. Esplanade Avenue and Cottonwood Avenue	17,749	C or better	14,196	C or better		
21. Cottonwood Avenue and Ramona Boulevard	19,467	C or better	19,819	C or better		
22. Ramona Boulevard and Ramona Expressway (SR 79)	20,924	C or better	21,320	C or better		
Ramona Expressway between:						
23. San Jacinto Street and State Street	32,131	C or better	33,594	C or better	Same as Build Alternative 1	
24. State Street and Sanderson Avenue (SR 79)	35,981	C or better	37,279	C or better		
25. Sanderson Avenue and Warren Road	31,790	C or better	51,370	C or better		
26. Warren Road and Bridge Street	25,487	C or better	58,377	C or better		

Table 3.3-2 Future Average Daily Traffic Volumes and LOS (Year 2035)

Roadway Segment	No Build Alternative (2035)		Build Alternative 1 (2035)		Build Alternative 2 (2035)	
	Daily Traffic Volume	LOS	Daily Traffic Volume	LOS	Daily Traffic Volume	LOS
Warren Road between:						
27. Domenigoni Parkway and Simpson Road	8,337	C or better	7,776	C or better	Same as Build Alternative 1	
28. Simpson Road and Harrison Avenue	16,010	C or better	7,356	C or better		
29. Harrison Avenue and Stetson Avenue	13,913	C or better	5,569	C or better		
30. Stetson Avenue and Florida Avenue	15,922	C or better	9,146	C or better	9,436	C or better
31. Florida Avenue and Devonshire Avenue	15,455	C or better	1,815	C or better	1,945	C or better
32. Esplanade Avenue and Cottonwood Avenue	21,021	C or better	7,865	C or better	5,645	C or better
33. Cottonwood Avenue and Ramona Expressway	17,490	C or better	11,737	C or better	11,987	C or better

Table 3.3-2 Future Average Daily Traffic Volumes and LOS (Year 2035)

Roadway Segment	No Build Alternative (2035)		Build Alternative 1 (2035)		Build Alternative 2 (2035)	
	Daily Traffic Volume	LOS	Daily Traffic Volume	LOS	Daily Traffic Volume	LOS
Sanderson Avenue between:						
34. Domenigoni Parkway and Harrison Avenue	31,944	E	6,286	C or better	Same as Build Alternative 1	
35. Harrison Avenue and Stetson Avenue	26,392	C or better	9,947	C or better		
36. Stetson Avenue and Florida Avenue	35,761	F	18,425	C or better	18,105	C or better
37. Florida Avenue and Devonshire Avenue	36,377	F	21,593	C or better	23,613	C or better
38. Menlo Avenue and Esplanade Avenue	33,594	E	24,816	C or better	26,086	C or better
39. Esplanade Avenue and Cottonwood Avenue	27,016	C or better	26,895	C or better	26,825	C or better
40. Cottonwood Avenue and Ramona Boulevard	22,627	C or better	26,290	C or better	26,300	C or better
41. Ramona Boulevard and Ramona Expressway	23,331	C or better	1,320	C or better	1,320	C or better
42. Ramona Expressway and Gilman Springs Road (SR 79)	48,774	F	47,157	F	Same as Build Alternative 1	

Table 3.3-2 Future Average Daily Traffic Volumes and LOS (Year 2035)

Roadway Segment	No Build Alternative (2035)		Build Alternative 1 (2035)		Build Alternative 2 (2035)	
	Daily Traffic Volume	LOS	Daily Traffic Volume	LOS	Daily Traffic Volume	LOS
Lamb Canyon Road (SR 79):						
43. Gilman Springs Road and Interstate 10	49,643	C or better	54,780	C or better	Same as Build Alternative 1	
Domenigoni Parkway between:						
44. Winchester Road and Warren Road	34,287	C or better	7,953	C or better	Same as Build Alternative 1	
45. Warren Road and Sanderson Avenue	29,942	C or better	13,305	C or better	Same as Build Alternative 1	
Cottonwood Avenue between:						
46. Warren Road and Sanderson Avenue	2,365	C or better	4,653	C or better	4,653	C or better
47. Lyon Avenue and State Street	8,459	C or better	7,634	C or better	Same as Build Alternative 1	

Table 3.3-2 Future Average Daily Traffic Volumes and LOS (Year 2035)

Roadway Segment	No Build Alternative (2035) Daily Traffic Volume	No Build Alternative (2035) LOS	Build Alternative 1 (2035) Daily Traffic Volume	Build Alternative 1 (2035) LOS	Build Alternative 2 (2035) Daily Traffic Volume	Build Alternative 2 (2035) LOS
SR 79 (Freeway) between:						
48. Newport Avenue and Domenigoni Parkway	Segments would not exist under No Build Alternative		42,447	C or better	Same as Build Alternative 1	
49. Domenigoni Parkway and Simpson Avenue			63,140	D	Same as Build Alternative 1	
50. Simpson Avenue and Florida Avenue			51,150	C or better	50,237	C or better
51. Florida Avenue to Menlo Avenue			49,830	C or better	43,978	C or better
52. Menlo Avenue to Esplanade Avenue			49,830	C or better	39,842	C or better
53. Esplanade Avenue to Cottonwood Avenue			38,170	C or better	39,842	C or better
54. Cottonwood Avenue to Sanderson Avenue			31,130	C or better	30,998	C or better
55. Sanderson Avenue to Ramona Boulevard			55,550	C or better	55,407	C or better
56. Ramona Boulevard to (just north of SR 79 / CRC interchange)			51,260	C or better	50,237	C or better

Source: Riverside County Transportation Commission, *Draft Traffic Study*, January 2006

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3.3.3 Direct Emissions and Re-Entrained Road Dust

The primary source of emissions from the Project would be vehicle exhaust emissions. Direct emissions of PM_{10} and $PM_{2.5}$ were estimated for the existing condition (2004), No Build Alternative (2015), Build Alternative (2015), No Build Alternative (2035), and Build Alternative 1 (2035). Because Build Alternative 1 and Build Alternative 2 would be essentially the same, the exhaust and re-entrained road dust emissions estimated for Build Alternative 1 also represent Build Alternative 2. The VMT for the No Build and Build Alternative 1 represent the project study area and includes the roadway segments presented in Tables 3.2-3, 3.3-1, and 3.3-2.

Peak direct emissions were estimated to occur in the year 2035 as shown in Table 3.3-3. However, the 2035 emissions may be overestimated due to limitations of the EMFAC2007 model. For example, the PM_{10} emission factor in the years 2015 and 2035 are the same or higher than the year 2004 emission factor for the vehicle class Light-Duty Automobile for speeds ranging from 40 to 55 miles per hour. Also, the EMFAC2007 model does not take into account proposed regulations such as the Low Carbon Fuel Standard which would reduce the carbon intensity of fuels by the year 2020. Implementation of proposed regulations would be expected to further reduce emissions in the future years. For these reasons, the peak emissions in the year 2035 may be overestimated.

Emissions for the No Build Alternative and Build Alternative 1 would be higher than the existing condition. The reason for this difference is that the VMT would be expected to more than double between the years 2004 and 2035, which results in higher estimated emissions in the year 2035. The emissions for Build Alternative 1 in 2015 and 2035 would be less than emissions for the No Build Alternative in 2015 and 2035, as shown in Table 3.3-3. The lower emissions result from higher vehicle speeds and lower VMT associated with Build Alternative 1 when compared to the No Build Alternative. The No-Build and Build Alternative 1 VMT projections would be similar, reflecting the fact that the overall travel in the project area would occur with or without the Project. However, the VMT projection for Build Alternative 1 is slightly lower than the projection for No Build Alternative. There are two reasons for the difference. First, Build Alternative 1 provides a more direct route than the existing SR 79, where drivers have to make multiple turns to remain on SR 79. Second, congested conditions lead to increased VMT as drivers find other routes to avoid congested areas. Since the Project would reduce overall congestion, it would be expected that drivers would be able to take more direct routes, resulting in lower overall VMT compared to the No Build Alternative.

The Project would improve LOS, increase vehicle speed, and result in lower emissions when compared to the No Build Alternative. Therefore, the Project would not be expected to cause or contribute to a new localized PM_{10} or $PM_{2.5}$ violation, increase the frequency or severity of any existing violations, or delay timely attainment of the PM_{10} or $PM_{2.5}$ standards.

Table 3.3-3 Direct Emissions of PM_{10} and $PM_{2.5}$

Alternative	Vehicle Kilometers Traveled (VKT)	Vehicle Miles Traveled (VMT)	Emissions (grams/day)		Emissions (lb/day)	
			PM_{10}	$PM_{2.5}$	PM_{10}	$PM_{2.5}$
Existing (2004)	5,149,900	3,200,000	188,800	134,400	416	296
No Build Alternative (2015)	7,724,850	4,800,000	225,600	148,800	497	328
Build Alternative 1 (2015)	7,563,920	4,700,000	211,500	136,300	466	300
No Build Alternative (2035)	12,231,010	7,600,000	319,200	205,200	704	452
Build Alternative 1 (2035)	12,070,080	7,500,000	307,500	187,500	678	413

Source: Draft Traffic Analysis for SR 79 Realignment, RCTC 2006

Note: Emission factors from EMFAC2007 (version 2.3) for the Riverside County portion of the South Coast Air Basin.

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Another source of emissions from the Project would be re-entrained road dust. Re-entrained road dust is resuspension of loose material on the road surface (USEPA 2006). The estimated re-entrained road dust emissions for existing condition (2004), No Build Alternative (2015), Build Alternative (2015), No Build Alternative (2035), and Build Alternative 1 (2035) are presented in Table 3.3-4. The re-entrained road dust emissions are directly proportional to the VMT. Therefore, because the VMT would be expected to more than double between the 2004 and 2035, the re-entrained road dust emissions would also be expected to more than double during this time period. This relationship between VMT and emissions is shown in Table 3.3-4 by comparison of the existing to the No Build Alternative and Build Alternative 1. However, emissions for the No Build Alternative would be higher than emissions for Build Alternative 1 in both 2015 and 2025. Because emissions for Build Alternative 1 would be less the than the No Build Alternative, the

Project would not be expected to cause or contribute to a new localized PM_{10} or $PM_{2.5}$ violation, increase the frequency or severity of any existing violations, or delay timely attainment of the PM_{10} or $PM_{2.5}$ standards.

Table 3.3-4 Re-entrained Road Dust

Alternative	PM_{10} Emissions (grams/day)	PM_{10} Emissions (pounds/day)	$PM_{2.5}$ Emissions (grams/day)	$PM_{2.5}$ Emissions (pounds/day)
Existing (2004)	481,125	1,061	174,675	385
No Build Alternative (2015)	721,688	1,591	262,012	578
Build Alternative 1 (2015)	706,653	1,558	256,554	566
No Build Alternative (2035)	1,142,672	2,519	414,853	915
Build Alternative 1 (2035)	1,127,637	2,486	409,394	903

Source: Draft Traffic Analysis for SR 79 Realignment, RCTC 2006

Note: Re-entrained road dust emission factors from AP-42, Chapter 13.2.1.

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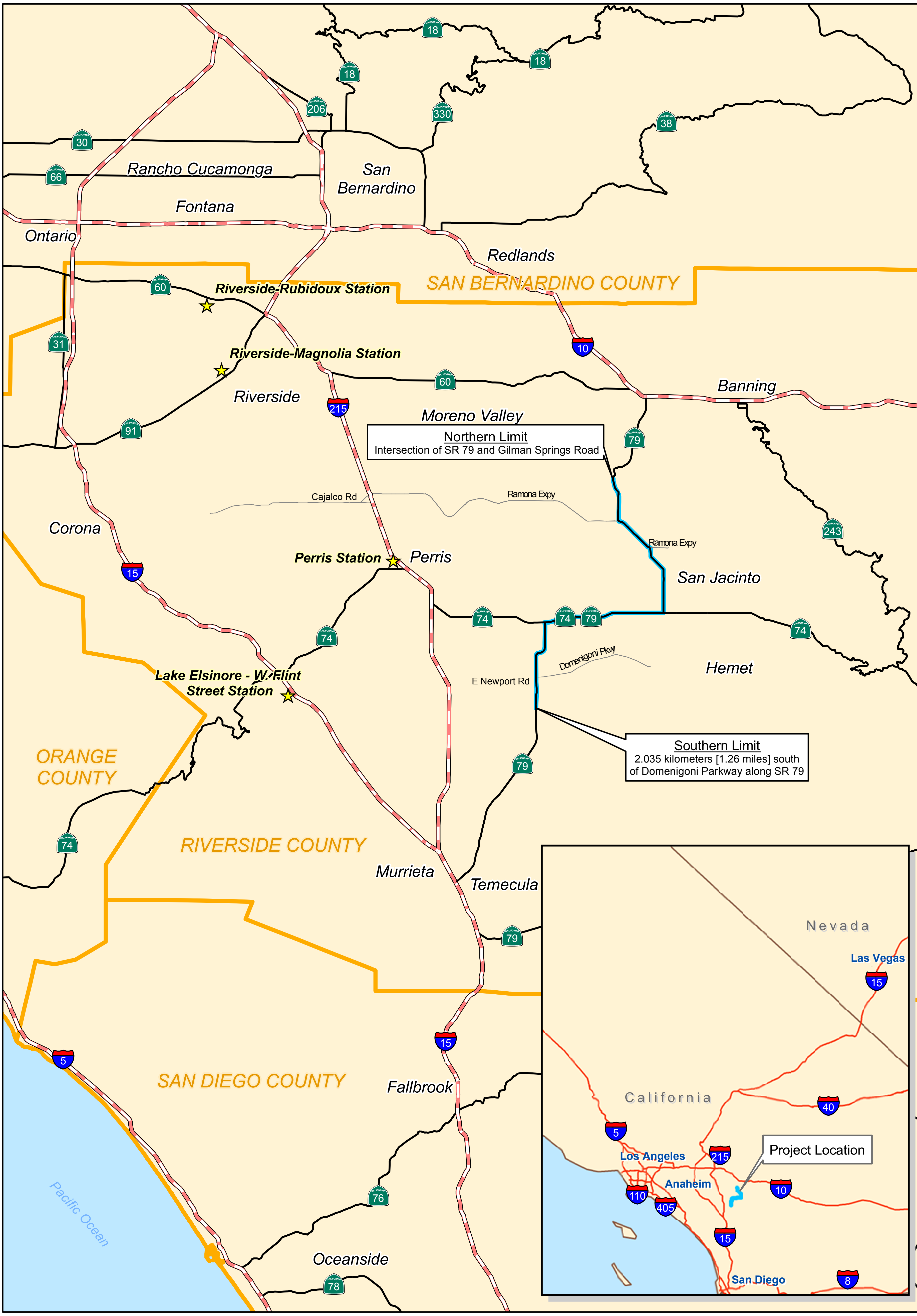
These results, that both vehicle emissions and paved road dust emissions increase over time, are consistent with the emission estimates in the South Coast Air Quality Management District (SCAQMD) 2007 Air Quality Management Plan (AQMP) and 2003 AQMP. The 2007 AQMP found that $PM_{2.5}$ emissions are expected to continue to increase in due to increases in VMT (SCAQMD 2007). However, total directly emitted $PM_{2.5}$ accounts for approximately 25 percent of all ambient $PM_{2.5}$ (SCAQMD 2007). Therefore, the $PM_{2.5}$ emissions increase is nominal and will be offset by decreases in NOx emissions such that the $PM_{2.5}$ ambient air quality standard will be maintained in 2015 (SCAQMD 2007). The 2003 AQMP showed similar results for on-road emissions and paved road emissions for PM_{10} (SCAQMD 2003). As part of the control measures in the 2003 AQMP, SCAQMD implemented Rule 1186 to reduce PM_{10} emissions from paved road dust. Therefore, the Project would not be expected to cause or contribute to a new localized PM_{10} or $PM_{2.5}$ violation, increase the frequency or severity of any existing violations, or delay timely attainment of the PM_{10} or $PM_{2.5}$ standards.



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LEGEND

- Existing State Route 79 Proposed for Realignment[CH]
- Air Monitoring Location[AB]
- Interstate[ES]
- State Route[ES]
- Local Road[ES]
- County Boundary[CR]

0 5 Miles

0 5 Kilometers

1:348,480

Sources: CH - CH2M HILL; CR - County of Riverside; ES - ESRI; AB - ARB 2007

Figure 3.2-1
Monitoring Station Locations
Draft Air Quality Technical Report
State Route 79 Realignment Project

DRAFT - NOT FOR PUBLIC CIRCULATION

SCO171146.T3.05.09\1008 Appendix C - Figure 3.2-1 Monitoring Station Locations.indd

Chapter 4 Conclusion

4.1 Conclusion

This project-level hot spot assessment evaluated the Project's contribution to ambient concentrations, compared traffic conditions between the alternatives, and provided an estimate of emissions for the years 2004, 2015, and 2035. These analyses found that the Project would: result in fewer emissions than the roadways near the monitoring stations with recorded PM_{10} and $PM_{2.5}$ exceedances, improve LOS, increase vehicle speed, and result in peak emissions in the year 2035 that would be lower than the No Build Alternative. Therefore, the Realignment of State Route 79 (Project or proposed Project) would not be expected to cause or contribute to any new localized particulate matter less than 10 micrometers in aerodynamic diameter (PM_{10}) or particulate matter less than 2.5 micrometers in aerodynamic diameter ($PM_{2.5}$) violations, would not increase the frequency or severity of any existing violations of the PM_{10} or $PM_{2.5}$ National Ambient Air Quality Standard (NAAQS), and would not delay timely attainment of the PM_{10} or $PM_{2.5}$ NAAQS. Therefore, the Project demonstrates the conformity requirements in 40 Code of Federal Regulations 93.123(b).

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Attachment
Paved Road Emissions

SR 79 Realignment
PM Hotspot Analysis

Paved Road Emissions

Alternative	Daily VMT	Emission Factors (grams/mile) PM_{10}	Emissions (grams/day) PM_{10}	Emissions (lbs/day) PM_{10}	Emission Factors (grams/mile) $PM_{2.5}$	Emissions (grams/day) $PM_{2.5}$	Emissions (lbs/day) $PM_{2.5}$
Existing (2004)	3,200,000	0.150	481,125	1,061	0.055	174,675	385
No Build (2015)	4,800,000	0.150	721,688	1,591	0.055	262,012	578
Build (2015)	4,700,000	0.150	706,653	1,558	0.055	256,554	566
No Build (2035)	7,600,000	0.150	1,142,672	2,519	0.055	414,853	915
Build (2035)	7,500,000	0.150	1,127,637	2,486	0.055	409,394	903

Derivation of Paved Road Emission Factor

Paved Roads emission factor from AP-42, Section 13.2.1: P*aved Roads* (11/06)

$$E = [k(sL/2)^{0.65}*(W/3)^{1.5}] - C$$

where:	PM10	PM2.5	
k =	7.3	1.1	particle size multiplier, g/VMT [Table 13.2-1.1]
sL =	0.03	0.03	road surface silt loading (g/m^2) [Table 13.2.1-3, for Ubiquitous Baseline Roadway with ADT >10,000]
W =	3	3	tons [Average vehicle weight]